

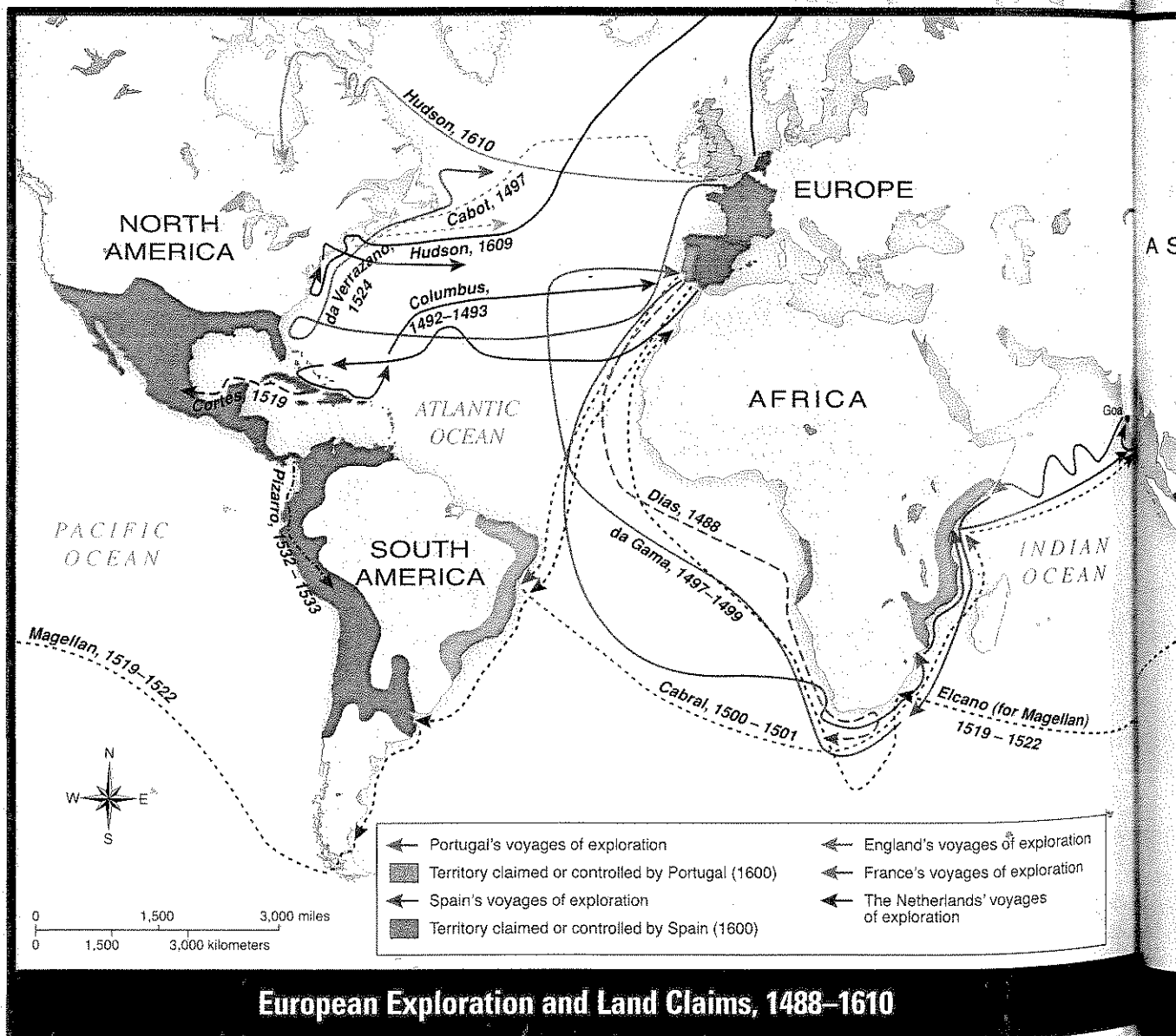
Setting the Stage

Europe Enters the Modern Age

In the last unit, you learned about the Renaissance and the Reformation. In this unit, you'll learn about Europe during the early modern age. This period lasted from the 1400s to the 1700s.

The early modern age was a time of major discoveries and new ways of thinking. It began with a series of voyages by European explorers during the 1400s, 1500s, and early 1600s. Historians call this time the Age of Exploration.

Before the 1400s, Europeans had only limited knowledge of other continents. Beginning in about 1418, several countries sent explorers by sea to other parts of the world. Portugal and Spain led the way. They were followed



by England, France, and the Netherlands. Their journeys took explorers to Africa, Asia, and North and South America. Their discoveries changed Europeans' knowledge of the world forever.

Countries raced to take advantage of this new knowledge. They sought riches through trade. They also claimed large parts of the world for themselves. As they competed with one another, Europeans had an enormous impact on people living in distant lands.

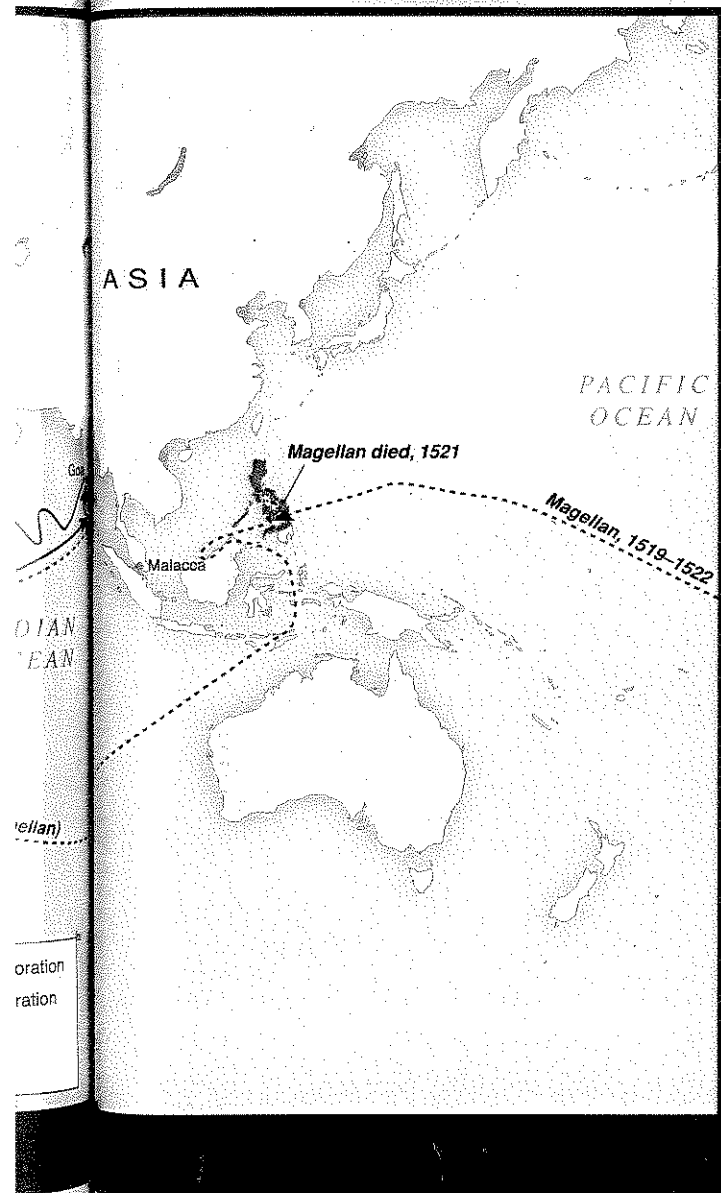
A second great change during this period was the Scientific Revolution. Between 1500 and 1700, scientists used observations, experiments, and logic

to make dramatic discoveries. For example, Isaac Newton formulated the laws of gravity. These laws explained both the movement of physical objects on Earth and the motions of planets in the heavens. The methods used by Newton and other scientists led to rapid progress in many fields.

Advances in science helped pave the way for a period called the Enlightenment. The Enlightenment began during the 1600s. It was a time of optimistic faith in progress based on reason (rational thinking). In fact, it is often called the Age of Reason.

Enlightenment thinkers wanted to apply observation and reason to problems in human society. This approach led to new ideas about government, human nature, and people's rights as human beings.

The far-reaching changes of the early modern age helped to shape the world we live in today. Let's begin our study of this important time with the voyages of discovery that took place during the Age of Exploration.



◀ Explorer Christopher Columbus plants Spain's flag in the Americas.

The Age of Exploration

33.1 Introduction

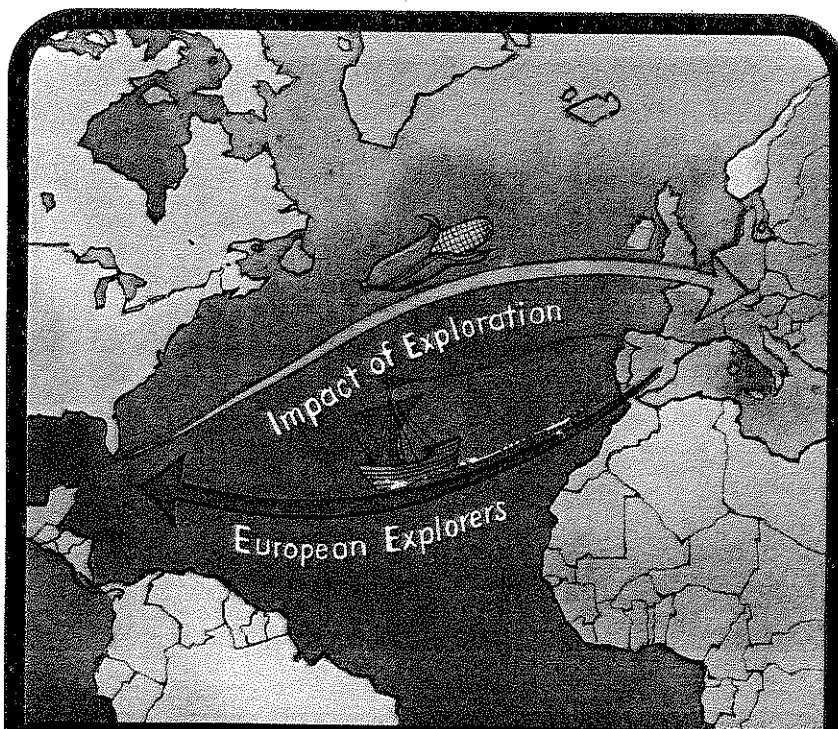
In this chapter, you will learn about the Age of Exploration. This period of discovery lasted from about 1418 to 1620. During this time, European **explorers** made many daring voyages that changed world history.

A major reason for these voyages was the desire to find sea routes to east Asia, which Europeans called the Indies. When Christopher Columbus sailed west across the Atlantic Ocean, he was looking for such a route. Instead, he landed in the Americas. Columbus thought he had reached the Indies. In time, Europeans would realize that he had found what they called the **"New World."** European nations soon rushed to claim lands in the Americas for themselves.

Early explorers often suffered terrible hardships. In 1520, Ferdinand Magellan set out with three ships to cross the Pacific Ocean from South America. He had guessed, correctly, that the Indies lay on the other side of the Pacific. But Magellan had no idea how vast the ocean really was.

He thought his crew would be sailing for a few weeks at most. Instead, the crossing took three months. While the ships were still at sea, the crew ran out of food. One sailor wrote about this terrible time. "We ate biscuit... swarming with worms.... We drank yellow water that had been putrid [rotten] for days... and often we ate sawdust from boards."

Why did explorers brave such dangers? In this chapter, you will discover some of the reasons for the Age of Exploration. Then you will learn about the voyages of explorers from Portugal, Spain, and other European countries. You will also learn about the **impact** of their discoveries on Europe and on the lands they explored.



Use this map as a graphic organizer to help you learn more about the European explorers and their routes and discoveries.

33.2 Reasons for the Age of Exploration

Why did European exploration begin to flourish in the 1400s? Two main reasons stand out. First, Europeans of this time had several motives for exploring the world. Second, advances in knowledge and technology helped make voyages of discovery possible.

Motives for Exploration For early explorers, one of the main motives for exploration was the desire to find new trade routes to Asia. By the 1400s, merchants and crusaders had brought many goods to Europe from Africa, the Middle East, and Asia. Demand for these goods increased the desire for trade.

Europeans were especially interested in spices from Asia. They had learned to use spices to help preserve food during winter and to cover up the taste of food that was no longer fresh.

Trade with the East, however, was expensive and difficult. Muslims and Italians controlled the flow of trade. Muslim traders carried goods to the east coast of the Mediterranean Sea. Italian merchants then brought the goods to Europe. Problems arose when Muslim rulers sometimes closed the trade routes from Asia to Europe. Also, the goods went through many hands, and each trading party raised their price.

European monarchs and merchants wanted to break the hold that Muslims and Italians had on trade. One way to do so was to find a sea route to Asia. Portuguese sailors looked for a route that went around Africa. Christopher Columbus tried to reach Asia by sailing west across the Atlantic.

Mapmakers created better, more accurate maps by using navigational tools and information from explorers.



Other motives also came into play. Many people were excited by the opportunity for new knowledge. Explorers saw the chance to earn fame and glory as well as wealth. Some craved adventure. And as new lands were discovered, nations wanted to claim the lands' riches for themselves.

A final motive for exploration was the desire to spread Christianity. As you learned in Unit 7, both Protestant and Catholic nations were eager to make new converts. Missionaries followed the path blazed by explorers, sometimes using force to bring native peoples into their faiths.

Advances in Knowledge and Technology The Age of

Exploration began in the midst of the Renaissance. As you have learned, the Renaissance was a time of new learning. A number of advances made it easier for explorers to venture into the unknown.

One key advance was in **cartography**, the art and science of mapmaking. In the early 1400s, an Italian scholar translated an ancient book called *Guide to Geography* from Greek into Latin. The book had been written by Ptolemy in the second century C.E. Printed copies of the book inspired new interest in cartography. European mapmakers used Ptolemy's work to draw more accurate maps.

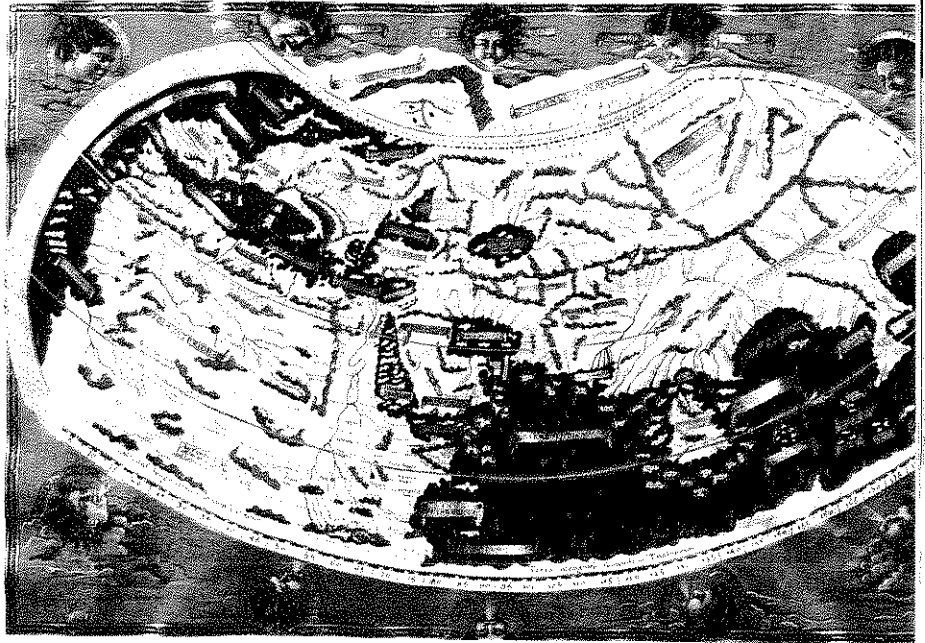
Discoveries by explorers gave mapmakers new information to work with. The result was a dramatic change in Europeans' view of the world. By the 1500s, globes showed Earth as a sphere, or ball. In 1507, a German cartographer made the first map that clearly showed North and South America separated from Asia.

In turn, better maps helped explorers by making navigation easier. The most important Renaissance geographer, Gerardus Mercator, created maps using improved lines of **longitude** and **latitude**. Mercator's mapmaking technique was a great help to navigators.

An improved ship design also helped explorers. By the 1400s, Portuguese and Spanish shipbuilders were making **caravels**. These ships were small, fast, and easy to maneuver. Their shallow bottoms made it easier for explorers to travel along coastlines where the water was not deep. Caravels also used lateen (triangular) sails, an idea borrowed from Muslim ships. These sails could be positioned to take advantage of the wind no matter which way it blew.

Along with better ships, new navigational tools helped sailors to travel more safely on the open seas. By the end of the 15th century, the compass was much improved. Sailors used compasses to find their bearing, or direction of travel. The astrolabe, which you read about in Unit 2, helped sailors figure out their distance north or south from the equator.

Finally, improved weapons gave Europeans a huge advantage over the people they met in their explorations. Sailors could fire their cannons at targets near the shore without leaving their ships. On land, the weapons of native peoples often were no match for European guns, armor, and horses.



Europe's Age of Exploration produced important advances in cartography and navigation. This 15th-century map of the world is drawn according to the work of 2nd-century Greek geographer Ptolemy.

cartography the art and science of mapmaking

longitude a measure of how far east or west a place on Earth is from an imaginary line that runs between the North and South Poles

latitude a measure of how far north or south a place on Earth is from the equator

caravel a light sailing ship that is easy to maneuver and can sail in shallow water